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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,520	12/12/2003	Davide Fausto Piccirilli	10541-1900	9976
29074	7590	04/29/2005	EXAMINER	
VISTEON C/O BRINKS HOFER GILSON & LIONE PO BOX 10395 CHICAGO, IL 60610			DOERRLER, WILLIAM CHARLES	
			ART UNIT	PAPER NUMBER
			3744	

DATE MAILED: 04/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/734,520	Applicant(s) PICCIRILLI ET AL.	
	Examiner William C Doerrler	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-13, 16, 17 and 19-30 is/are rejected.
- 7) ☒ Claim(s) 4, 5, 14, 15 and 18 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12-12-2003</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

Claims 23-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 23 controls the compressor using an algorithm using the temperature of air entering the compressor and pressure leaving the compressor as parameters.

However, only the temperature is determined. It is unclear if the pressure is determined using a pressure sensor, or determined knowing the mass and conditions of gas entering the compressor and the compressor characteristics. In claim 24, "the exhaust valve" lacks clear antecedent basis. The other claims listed above, but not specifically mentioned depend from claim 23, so they are unclear by their association.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Lents et al.

Lents et al show an air cycle cooling system with a compressor 3, a turbine 13, an intercooler 4 and a mixing chamber 17 for mixing the cold expanded air with air from the space to be cooled. Electric motor 14 powers the compressor which may use air from the space to be cooled (through the line passing through ECS pack 2).

Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Alboroudi et al.

Alboroudi et al show an air cycle cooling system with a compressor 14 an intercooler 20 and a turbine 34. Mixer 52 mixes air from the turbine with air from the cabin.

Claims 1,2 and 6-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Edwards.

Edwards shows a compressor/expander 10 (column 11 lines 36-46 state that separate components may be used), an intercooler 45 and a mixing chamber 53 which mixes the expanded air from the turbine with air from the space to be cooled. Moisture from the mixing chamber returns to the inlet of the compressor through line 100.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3,11-13,16,17,19,21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weil in view of Nikai et al.

Weil discloses applicants' basic inventive concept, an air cycle cooling system which compresses air, cools the compressed air and expands the air in a turbine and mixes the expanded air with air from the interior of the space to be cooled (in air mixing chamber 14), substantially as claimed with the exception of containing the system in a common housing and using air from the space to be cooled as input for the compressor. Nikai et al show these features to be old in the air cycle cooling system art. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention from the teaching of Nikai et al to modify the air cycle cooling system of Weil by using air from the space to be cooled as input to reduce the risk of contamination and to improve efficiency by using air which may already be cooler than ambient as the feed and to contain the system in a housing to make transportation and installation easier. In regard to claim 12, Nikai et al teach the use of a movable cooling system, to use this in a standalone cooling chamber is seen as obvious to an ordinary practitioner in the art as is the cooling of any space shown to be desirably kept cold. In regard to claim 17, Official Notice is taken that shrouds covering pulleys are well known in the mechanical

transfer of energy art and as such would have been obvious to one of ordinary skill in the art to protect the pulley. In regard to claims 19 and 21, neither reference discloses the efficiency of the individual components, but the claimed limits are seen as obvious as applicant has not disclosed any changes to the known components claimed as having the efficiency limits. Thus these limits are seen as achievable by known components.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weil in view of Nikai et al as applied to claims 1-3,11-13,16,17,19,21 and 22 above, and further in view of Leo.

Weil, as modified, discloses applicants' basic inventive concept, an air cycle cooling system which mixes air which has been cooled with air from the space to be cooled, substantially as claimed with the exception of using screw type compressors and expanders. Leo shows this feature to be old in the art. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention from the teaching of Leo to modify the air cycle cooling system of Weil by using a screw compressor and expander to provide efficient pressure change to the air.

Allowable Subject Matter

Claims 4,5,14,15 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 23-30 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Defrancesco et al, Clarke et al and Atkinson show air cycle cooling systems with temperature sensors to control the flow of air. Piao et al show an electrically powered air cycle cooling system. Bhatti shows an electrically powered air cycle cooler which uses air from the space to be cooled as the input for the compressor. Hughes shows a water separator for an air cycle cooler.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C Doerrler whose telephone number is (571) 272-4807. The examiner can normally be reached on Monday-Friday 6:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Denise Esquivel can be reached on (571) 272-4808. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


William C Doerrler
Primary Examiner
Art Unit 3744

WCD